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ABSTRACT

Although it is difficult to ascertain precisely the time at which the study of individual differences became recognized as a specialty within the psychological sciences, there appears to be much agreement among historians that its development was fostered primarily within the United States during the late 19th century. This paper examines the beginnings of research and application concerning individual differences and their social context in which it proliferated. Within this context, the nature versus nurture controversy is introduced, and a discussion about its importance to the field of developmental psychology follows. Charles Darwin's research was not always fully understood by others and some of the resulting pseudoscientific philosophies are discussed. The Eugenics movement, Social Darwinism, and intelligence testing are examined, with emphasis on the latter. Late nineteenth and early twentieth century conceptions of human development are explored. Sex differences in intelligence, functionalism, and behaviorism are also discussed in historical context. Contains 10 references. (JBJ)

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Evolution, Convolution, Dissolution: The Rise of Individual Differences in Human Developmental Psychology

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Evolution, Convolution, Dissolution: The Rise of Individual Differences in Human Developmental Psychology

Although it is difficult to ascertain precisely the time at which the study of individual differences became recognized as a specialty within the psychological sciences, there appears to be much agreement among historians that its development was fostered primarily within the United States during the late 19th century. It also appears to be generally accepted that the development of this area of research and application is rooted in Darwinian theory (Innis, 1992).

Individual differences, according to Walberg and Haertel (1992), became a systematic field of study with the publication of Francis Galton's (1869) book Hereditary Genius. Galton, whose primary interest was the measurement of intelligence in humans, examined the heritable nature of mental abilities. Through his research, Galton hoped for racial improvement, and he set about in an exhaustive mental testing campaign. By proposing that his measurements show a large heritable component in intelligence, the Eugenics movement was born. This movement proposed that through selective breeding, humans could improve the intelligence of their species over time. At this time it was felt (and "supported" through dubious testing procedures) that the more intelligent of peoples were white aristocrats and scientists.

Social Darwinism and eugenic ideas and motives served as the impetus for the development of intelligence testing in America in particular, and the emphasis on individual differences in general. Research in the area of individual differences has had tremendous impact on the psychological sciences, albeit having misguided origins and motives. This paper will examine the beginnings of research and application concerning individual differences and the social context in which it proliferated. Within this context, the nature versus nurture controversy will be introduced, and a discussion about its relevance to the study of individual differences, and its importance to the field of developmental psychology, will follow.

Evolution and Convolution

While Charles Darwin's research focused primarily on the behavior of nonhuman species, his ideas developed into an explanatory framework for the understanding of human variability and phylogenetic development. Darwin's ideas were not always fully understood by others, resulting in a proliferation of convoluted, pseudoscientific philosophies regarding the development of human attributes. Social Darwinism, early mental testing, and the eugenics movement are such examples, which will be discussed after an introduction of Darwin's basic ideas.

The principles of Darwinian theory, in brief, are as follows: 1) Humans are all part of the same animal world and there is a continuity of species; 2) This continuity has occurred in nature and not as a result of creation; and 3) There is widespread variation within any given species, resulting in individual differences. Darwin proposed that a struggle for survival exists in humans and other animals which results in the natural selection of the most fit organisms over time, therefore, certain variations are more likely to survive than others. Darwin defined fitness in humans as the reproductive success of an individual; the better able the organism is to reproduce, the more adaptive characteristics are passed on to its offspring.

Darwin's premise that humans are a part of the same animal world and that there is a continuity of species served to further experimentation in the area of comparative psychology. Darwin proposed that man had evolved from apes and that studies of primate behavior could provide an evolutionary window through which humans could better understand the development of their own species. Between the release of Darwinian theory and the heyday of behaviorism in America much research was generated regarding the phylogenetic distribution of behaviors and traits. American Functionalists latched onto practical methodologies in animal

research. Skinner believed that human learning paralleled that form of learning demonstrated by rats, due to his belief that rats, like humans, came into the world in a tabula rasa state. Skinner expounded upon Darwin's idea that environmental pressure forced animals to compete and hence, learn adaptive behaviors, and expanded it to identify environmental contingencies of reinforcement as the powers which shape individual behavior. Tolman, another animal researcher, focused on purposive behavior in animals, with the assumption that animals have the capacity to acquire new behaviors which could serve as adaptive given a niche in which the behaviors enhanced survival (Innis, 1992).

The Darwinian concept of variation within any given species has influenced psychology to a great degree, ultimately resulting in an American psychology which has as its cornerstone an emphasis upon the discovery and understanding of individual differences. Social Darwinism, introduced by Herbert Spencer, emphasized the role of individual differences. Spencer, who was described as an "evolutionary associationist" believed that associations made repeatedly between parents and their offspring are passed along through heredity (Hergenhahn, 1992). In referring to human competition, he coined the term "survival of the fittest"; The notion that those individuals with the fittest

characteristics will prosper and reproduce was used by the aristocracy to justify their domination over the proletariate classes. This notion perhaps also served as one of the justifications for American settlers to "divide and conquer" the land, without regard for the native Americans who were viewed as inferior beings.

James McKeen Cattell, who coined the term "mental test" in 1890, utilized Wundt's experimental principles and extensions of Galton's anthropometric tests toward advancing mental testing. Strongly influenced by Galton, Cattell was convinced that variations in mental processes could be objectively measured by psychophysical methods. As described in von Mayrhauser (1992), Cattell defined the accuracy of his tests in relation to other tests and hence, equated validity with reliability. Cattell proposed a form of "mental energy" as underlying all mentality and argued that it is predictive of academic abilities. These theories were not supported through the replication method; In fact, one of Cattell's own students, Clark Wissler, used correlational methods to demonstrate the tests' low correlation with academic performance.

The concept of a unitary intelligence was of special interest among researchers in the United States. Lewis Terman

coined the term IQ, or intelligence quotient, to serve as an index of general ability. The deterministic beliefs that general ability is largely inherited and that instruction should be geared toward the needs of the superior students served as guiding principles in the educational policy of early twentieth century America. Indeed, during this time, determinism was the prevailing ideological orientation toward understanding human development, with little or no recognition of the influence of environment on a child's capacity to learn. Individual human development was viewed as a predetermined process, insofar as the individual could only progress as far as his or her innate capabilities would allow. Here the IQ was believed to be the manifestation of these innate capabilities, a stable quality uninfluenced by environmental conditions.

Early attempts to measure intelligence was spawned from such philosophies. With the increase of immigration to the United States during the early 1900's came an increasing trend of government-endorsed testing campaigns which purported to identify and classify emigrants according to their capabilities. Physical attributes of individuals were often overemphasized during this period due to the prevailing belief that poor genetic endowment in turn led to poor physical condition (Hergenhahn, 1992).

Physical characteristics provided convenient indices of measurement in the absence of well-researched intelligence tests, and it is not unlikely that during this time many children were inappropriately labeled as "feebleminded" on the basis of physical characteristics alone. Many Southeastern European immigrants arriving at Ellis Island were classified as mentally deficient based on similar, culturally biased procedures. In American schools, due in large part to social Darwinism and eugenic philosophies, remedial programs such as special education were not in the mainstream of schooling due to the belief that child anomalies were part of the natural social order and that society would benefit more from the education of the more "fit" children (Fagan, 1992).

Dissolution

Late nineteenth and early twentieth century conceptions of human development were characterized by two ideological viewpoints. The notion that individual development is determined primarily by inherited, or innate, qualities was embraced by people who maintained higher positions in the social hierarchy. An opposing view, held by people of lower social status, favored environmental influences on development. These dichotomous viewpoints epitomized the nature-nurture controversy, which

continues to permeate the study of individual differences today. From the nature-nurture debate in developmental psychology have emerged issues which ultimately led to the serious questioning of social Darwinian and eugenic principles. We will now discuss these issues, limited to those involving the development of intelligence.

The first issue to be discussed here is the notion of the variability hypothesis of intelligence. The functionalists, adhering to their interpretation of Darwinian principles, believed that men represented the extremes of the normal distribution of abilities whereas the female population was somewhere in the middle. In other words, more idiots and geniuses were men. The functionalists further believed that the reason for the under-representation of women in institutions for the mentally-defective was that there is a smaller number of "dumb" females. Likewise, the reason for female under-representation in the universities and in powerful, influential roles throughout history was believed by the functionalists to be the result of a smaller number of "very smart" females. Also, women were believed to be intellectually inferior simply because they infrequently attained eminent positions in society. These notions were used to justify gender discrimination in social

customs. As Spencer (1891) argued, the female's energies were used to prepare for pregnancy and lactation, thereby reducing energies available for the development of other qualities. In turn, this resulted in "early cessation" of individual evolution in the female (Shields, 1975). A popular belief during this time was that if women crossed over into the male sphere and became politicians, scientists, doctors and such, what would naturally follow are deleterious effects on the human species. This is illustrated by Cattell's alarm in the fact that in the United States in 1909 there were 400,000 women employed as teachers. He believed that as women left their child-bearing and rearing roles and assumed employment outside the home, the condition of the family would deteriorate. A repercussion of this belief was the fact that male university faculty members were engaged in barring females from graduate study. This practice, they believed, would help to prevent the undermining of the conventional view and naturally relegated role of womanhood.

Leta Hollingworth's evidence that women were not innately inferior to men in their abilities shed light upon environmental factors involved in the development of human intelligence and achievement (Shields, 1975). Prior to Hollingworth, women were relegated to non-academic roles in society and had little, if

any, opportunity to advance themselves through higher education. Moreover, as children they were differentially reinforced in comparison to boys according to what type of work they would pursue as adults. For example, boys were rewarded for pursuing influential careers such as physicians, lawyers, and politicians, whereas women were rewarded and thought of as "normal" for pursuing motherhood and caretaker of the household. As stated earlier, this was merely the prevailing view - it was just the way the sexes had evolved naturally. Not until after the female researchers began to dissolve this functionalistic idea of male and female roles did environmental theories begin to take root in American psychology.

As research was generated in the area of gender differences, women, such as Leta Hollingworth and her predecessor, Helen Thompson, grew increasingly skeptical about the data collected by men and the conclusions drawn from those data. As the cultural milieu changed and men became more accepting of female inclusion in the male sphere, the notions of female inferiority and greater male variability gradually lost their influence.

Eugenic theorists maintained that since criminality, disease, and mental defects were more prevalent among the lower classes of society, humankind could only be improved through

sterilization of those individuals deemed unfit to reproduce. Even though women were viewed as inferior to men, their utility in reproduction was of obvious importance and they were therefore not targeted as a group for sterilization. However, individuals thought to be feebleminded such as prostitutes and southeastern Europeans were not immune to this endeavor. Nazi Germany, in their adoption of eugenic principles and their distortion of the philosophy of Friedrich Nietzsche, sought to create a nation of "supermen" which resulted in perhaps the most horrific crimes in human history.

The endeavors of the Nazis and eugenicists were fortunately challenged and halted. Not only were the applications of eugenic principles unethical, they were built on fallacious grounds. Eliminating certain genotypes through sterilization would result in removing characteristics from the human gene pool. Defects in one arena may be advantageous in another, for example, sickle-cell anemia, a genetically transmitted blood disorder, though often fatal, can increase one's resistance to malaria. Likewise, there is a growing body of research suggesting that certain mental illnesses, such as manic-depressive psychosis, may be associated with creativity. Homosexuality, it has been argued (LeVay, 1993), may predispose one to the development of

creativity and sensitivity, two attributes which are important to survival in some realms of society. Indeed, as the field of genetics is becoming more advanced, researchers are discovering certain advantageous - or at the very least adaptive - qualities of genes formerly believed to be entirely deleterious. Many changes in the conception of human behavior and development will be sparked by progress in the field of genetics. It will be interesting to witness this as the future unfolds.

Another force which weakened, and ultimately contributed to the demise of social Darwinism and eugenics, was behaviorism. Behavioral theorists such as James Watson and B.F. Skinner viewed human development as contingent upon environmental forces, thus emphasizing the nurture component and challenging the notion that inherited attributes are solely responsible for developmental outcome. The notion of tabula rasa, that is, that healthy individuals are born without predispositions toward any particular behavioral tendencies, became the cornerstone theory generating rigorous research which in turn provided much evidence in favor of environmental determinism. As a result of this evidence, human development is now largely viewed within an interactionary perspective. As Miller (1989) asserts:

Today nearly everyone agrees that the interaction of innate

> and environmental factors accounts for both the development of a trait or behavior in an individual and the variations in a trait or behavior among individuals. Nature and nurture are inextricably intertwined. (p. 25)

What follows, then, from the history of developmental psychology is a recognition of the need to view any theory within the context of the social milieu in which it has developed. The dubious philosophies and methods of the social Darwinists and eugenicists were, in large part, products of the zeitgeists of American and European societies. Like Galileo before and Einstein after them, it was fortunate for civilization (and more specifically, developmental psychology), that some scientists challenged these paradigms and consequently dissolved their influence on explanations of human development.

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